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MEDICAL OBJECTIVES*

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Within a little more than 300 years the land which we call the United States has become the home of the fourth largest national group in the world. China, of course, is first, India second, and Soviet Russia third.

When the United States was founded, republics were few and weak and Europe predicted a speedy end of the young nation. For a time the future did seem uncertain, but all the dangers were overcome until now in extent, stability, population, wealth and power our republic ranks either first or among the first of the nations of the earth.

Daniel Webster said, "America has proved that it is practicable to elevate the mass of mankind—the laboring or lower class—to raise them to self-respect, to make them competent to act a part in the great right and the great duty of self government and she has proved that this may be done by education and the diffusion of knowledge."

Webster was right then and is today. Likewise, the words of another great patriot are as true now as when Emerson wrote them, "America is another name for opportunity. Our whole history appears like a last effort of divine Providence in behalf of the human race."

Opportunity is a word which, like so many others that are excellent, we get from the Romans. It means near port, close to haven. It is a favorable occasion, time or place for learning or saying or doing a thing. It is an invitation to seek safety and refreshment, an appeal to make escape from what is low and vulgar and to take refuge in high thoughts and worthy deeds, from which flow increase of strength and joy.

Life is good and opportunities of becoming and doing good are always with us. Our house, our table, our tools, our books, our city, our country, our language, our business, our profession—the people who love us and those who hate, they who help and they who oppose, what is all this but opportunity?

Now we are ready to ask and answer, what are the "opportunities in the medical profession?"

1. The medical profession has the opportunity of furnishing an example of good citizenship. A good citizen is a man or woman who is doing something of service to the community. A good citizen is a workman who needeth not to be ashamed. There is no fitting place in society for the selfish and the greedy and you will see in time that only insofar as the range and circle of your duties may include others and help and bless them, will you find the true joy of living.
2. The medical profession has the opportunity of safeguarding the health of the community and the state.
3. The medical profession has an opportunity of setting an example of sympathy, charity and kindness.

In each generation some of the best

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minds have devoted themselves to the study of the healing art. This will always be so. There is an allure to the practice of medicine which keeps the conscientious physician struggling on for his patient in the face of any difficulty. I like to believe that it is an inherent love of human-kind, which makes life's ultimate goal the universal brotherhood of man.

4. The medical profession has the opportunity of an interesting future.

With the greater knowledge of the cause of disease which time will bring us, there will be put into the hands of the physicians of the future a weapon far more powerful than any we can wield today. We may reasonably look forward to the time when many of the evils which afflict us now will be avoidable and as a result, the span of the life of man, which even in our own time has been materially increased, will be stretched several decades beyond the three score and ten, that at one time were allotted to man. Yet, to attain such results as these there will have to be cooperative efforts. On the willingness of the individual to accept the teaching of the science of those days, to obey the dictates of the medicine of the future, will depend the reward which science will then offer.

The practice of medicine had its origin in the far distant past. Primitive man, the ancient ancestor of the present generation, was a savage who roamed the earth, ignorant of the phenomena of his existence or of his surroundings. Fear of death was uppermost in his mind. He feared his fellow man, the wild beasts that inhabited the mighty forests and fled in terror from such natural phenomena as thunder and lightning. He attributed all his misfortunes, including disease, to evil spirits, that in his imagination inhabited the air about him. To protect himself from these evil spirits he invented good spirits, charms and mystic rites. In due time some one member of the clan or tribe appeared to be more successful than others in combating these evil influences. This man became the magician or medicine man of the clan. He was the progenitor of the physician.

About 400 years before the birth of Christ, there lived in Greece a physician, whose name was Hippocrates. He became the greatest physician of his age. He was the first to recognize the error of mysticism, magic and religion in medicine. He taught that disease was cured by the natural powers of the body. He practiced bedside observation of symptoms, examined the secretions of the body and investigated the digestibility of various foods. He established the practice of medicine on a rational basis. He also composed a code of ethics to govern the conduct of physicians. He declared that the true physician must be a man of honor, true to himself and honorable in his dealing with all men. This ancient code is the basis for the present code of ethics that is in use today by the medical profession. In this date of many codes we of the medical profession can point with pride to this ancient code of ours that has been a lamp to guide the members of our profession throughout all the centuries of the past.

Gradually the science of medicine progressed until today we find not a finished product but a system that has reduced the incidence of disease to a point that is nothing short of miraculous. The death rate from disease has dropped to 9.6 per thousand and nearly 20 years has been added to man's age expectancy. The number of newborn infants that may reasonably expect to reach maturity has been vastly increased. Trench after trench of man's great enemy, "entrenched disease," has been taken in our war on that dread enemy of the human race. There remains much more to be done before disease will be entirely under control.

During all of these centuries past, the physician has never faltered in his endeavor to serve suffering humanity. Perhaps the most puzzling question a physician ever asks himself is "what do people expect from a doctor?" and that probably suggests another, "how do they make their choice when they decide to call a doctor?" The great majority of physicians have confessed an inability to get unqualified and uncolored answers to these questions.

The principal reasons for the selection of a particular physician may be grouped as follows:

1. Ability, which consists of economy,

willingness, reliability, honesty and quickness.

2. Personality, which means confidence, warmth of heart and sympathy. Universally there is a desire to find a physician in whom perfect trust can be placed.

The personal side of the practice of medicine, which has always played an important and comforting part, steps in at such times and renders a service which the people not only desire but demand. Sympathy, kindness, pity and cheerful hope—no amount of scientific efficiency can take the place of these in the dark hours of sorrow and trouble so common in the experience of all.

President Eliot of Harvard said, "In these intangible things are found the durable satisfactions of life; fame dies and honors perish, but loving kindness is immortal."

I would not belittle the importance of science in medicine — I bow in humble reverence before its beneficent power, nor would I magnify the personal element, yet many of us know from experience what comfort, hope and assurance the personality of a trusted physician may bring to the bedside of his patient.

The reaction of the public press to the indictment of the American Medical Association, its officers and permanent secretaries of the various councils, by the grand jury in Washington is most questionable as to a proper government procedure. This action has aroused tremendous resentment among the medical profession. The feeling that the profession has been treated most unfairly is not confined to its members. Judging from the editorials from the lay press it is obvious that there are many, many others in this country who feel that the indicting of these officials was an underhand act to prepare the way for socialized medicine. It is a distinct and direct effort to harm the medical profession and to weaken its stand against socialized medicine. There is no question but that this is the motivating purpose of the indictment. As an example of the reaction of the legal profession, the statement of a distinguished lawyer might be mentioned, he said that it is the first time that he ever knew or heard of an act which had to do with financial and business relations being called on to lash a noble profession and to bring about a social change which is unnecessary and undesirable.

Mr. Carter expresses well the feelings that the great majority of the profession have in regard to the underhand measures that have been taken by a few enthusiastic, misguided Washington officials to chastise medicine. He said:

"It is a remarkable commentary on our present day life that there should be held up to public scorn a profession such as that of medicine, which has always upheld the finest of traditions, which has labored day and night in the care of the sick, rich or poor, and which has alleviated sickness and death to such an extent that morbidity incidence and death rate have fallen to a degree which is astounding. In no other country in the world is there a comparable record of decreasing illness and diminishing death rate. That medicine should be punished and held up to public ridicule because it has been through the efforts of organized medicine, that quacks have been kept in restraint, that hospitals have the efficiency they have and that medical service is as excellent as it is, is utterly ridiculous. It is almost entirely through the efforts of the American Medical Association, through its policing powers, that medical ethics is where it is today, that quackery is on the decrease and that malpractice is practically non-existent. It should be to the glory of organized medicine that such an honest, clean profession exists. Benighted reformers in Washington have done their best to destroy the faith of the American people in their physicians and doctors."

This is really most lamentable. American medicine needs no defense. One of the most important officials of Washington has just pointed out that the death rate last year was lower than it had been in this country in many years. The health of the population, as a whole, is guarded most effectively by present day methods. The people of America receive better medical care than any country in the world. There is never a serious illness or epidemic which is not taken care of adequately. If the American man, woman or child is not getting medical care it is either because of their unwillingness to make use of the existing facilities or it is sure to be some

minor condition which is of minimum moment. Did any one in Washington ever hear of an indigent patient with a broken leg, pneumonia or acute appendicitis who does not receive the same care, attention and skill that a person would receive who can afford to pay?

I have been following the quarrel between the group health association and the District of Columbia Medical Society.

How can any group of people who are capable of earning between $1,400.00 and $2,000.000 per year be so deluded by a plan that promises better medical care for $2.20 per year? G.H.A. boasts that it pays its physicians $6,000.00 per year. How many persons must join in order to pay one physician's salary? At least 2,713 persons. This does not include medical equipment, expendable supplies, office space, utilities and assistants. Hence the number will run well over 3,000 and these 3,000 will consult a physician many more times than they would if they were paying by the visit.

The present ratio is 300 patients per physician. Therefore the G.H.A. doctor will have to take care of 12 times as many people as the community physician now cares for. How can he give each patient the time and care he needs when good medical care and thorough diagnostic procedure is a long, drawn out process and cannot be done in a few minutes? At the present time, because the experiment is on trial, those physicians who have accepted such positions will do their utmost to satisfy all patients until it is on a running basis, in order to insure a salary they could not possibly equal otherwise.

Personally, I feel that patients get better care by going to a physician who can give them his time and personal attention, a man who is familiar with their family and history. One certainly gets what one pays for and one cannot expect much for $2.20 per year.

It has been argued that the middle class will now receive the care it needs but from personal experiences over a long period of time and knowing many physicians, I know that the community physician has always given such care, at a price commensurate with a patients' ability to pay. A woman who is employed by the H.O.L.C. was telling recently how good this plan would be for people in her circumstances; yet her husband and three grown children are employed; they own a beautiful home in a nice section of the city and own a car. This is the type of person that group health will cater to.

The community physician does a great deal of charity. The G.H.A. doctor will do none, yet he throws the entire burden of charity on the community physician and at the same time robs him of part of his income. Perhaps this is the reason he accepted such a position in the first place. He stands to lose nothing and at the same time receives at regular intervals an adequate salary, something the community physician never has had. This type of doctor is not the type who would give his patients the best care and couldn't if he wished. And what will these members of group health, who are being intimidated into joining or going into it because it is a cheap way out, do in times of the year that are most conducive to illness or in times of epidemic? Perish like flies—because it is the cheap way out.

If the government could not administer medicine any better than it administers its various bureaus—if it indulged in the waste of medicine that it indulges in administering its various functions—if it had as little regard for ability in its physicians as it has in its servants, I fear that the health of America would be in serious jeopardy. Everyone knows or should know that political appointments are often made for political expediency and not because of ability; and we have no reason to believe that it would be any different in federal medicine.

Some have pointed out that 430 doctors revolted against the American Medical Association in favor of federal medicine. A splitting off of 430 men from an organizatio nof 106,000 members cannot be called much of a revolt and especially not when we see that these men are not true family practitioners. Most of them are practicing on salaries in institutions and do not come in very personal contact with their patients; therefore they are not representative of the American family physician.

Under federal medicine, the doctor and patient relationship would exist no longer. "The doctor's duty would be to the state and not to the patient," and this astound-

ing and un-American utterance is not my statement but the statement of one close to the administration. By serving each individual patient well the physician is performing a greater service to his country than by serving some bureau. The six per cent indigent are now being well attended by the various cities and towns. The 94 per cent of the population who are able to pay probably wish to choose their own physicians.

The agitators for federal medicine have not proved that there is any need for such legislation. Let them prove their case and not go off on a tangent, and then be compelled to beat a hasty and ignominous retreat.

The American people are a proud people and do not wish some political bureau to enter their home life, to administer their routine in illness, to invade their right of privacy. Federal medicine would be a tragedy for the American health record—the best in the world.

By means of a calm and dispassionate marshalling of facts let us redouble our efforts to convince the public that socialized medicine is "poorhouse medicine."

Daily, one sees in the papers the work of m e d i c a l men, who have discovered something new, not only to lessen mortality but at the same time curtails the income of the physician and still there is propaganda fostered by the 19 other cults, who are poisoning the minds of the people against the only scientific body of men who are engaged in the healing art. There is not a regular physician in the state of Oklahoma who would not go, day or night, rain or shine, when he is called. The patient first and compensation last.

The medical units may be formed, they may flourish for minor ailments, but when they cannot pay their dues or death is imminent, the regular old doctor will be on the job. The future of public health must center around the family physician, who with his bag and office equipment still cares for 95 per cent of the nation's illness. The treatment of illness must remain a profession.

Now, what constitutes a profession? Personal service. It cannot be standardized. There is an intellectual character to this service, with considerable self-direction and individual responsibility. There can be but one master in the house of medicine and that is the physician himself.

State medicine cannot change human nature though it may alter relationships. Independence in medical practice is as essential to the happiness and prosperity of physicians and to the advance of scientific medicine as independence gained by prodigious expenditure of blood and treasure, should under all circumstances be sacredly preserved to the people of these United States.

In summarizing—I am opposed to state medicine for the following reasons:

First—Government subsidies mean government control of everything it subsidizes.

Second—Government subsidies to private institutions mean the appropriation of public funds — the tax money of the people.

Third—It means government paternalism.

Fourth.—It means the government entering into competition with private medical practice.

Fifth—It m e a n s the surrender of the sovereignty and independence of the people to government regimentation.

Sixth and lastly—It means the gradual reduction of the rights of citizens to the status of serfs and minors.

The Unspecified Prescription

Some physicians are averse to specifying the mixer's name of a proprietary product.

"I invariably specify Mead's whenever I can, for I feel that when I do not specify a definite brand, the effect may be the same as specifying that any brand will do.

"By not specifying exactly, I let down the bars to a host of houses, many entirely unknown to me and others deserving no support at my hands.

"When I specify Mead's, I may be showing favoritism, but at least I know that I am protecting my results. If, at the same time, my self-interested act encourages a worthy manufacturer to serve me better, I can see no harm in that."

Mead Johnson & Company, Evansville, Ind., U.S.A., have to depend upon the physician to specify MEAD'S because they do not advertise their products to the public, either directly or through merchandising channels.

Injuries of the Brain and Spinal Cord*

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There were 38,000 deaths due to automobile accidents in 1938. A large number of these were caused by injuries to the head and to the spinal column which involved the brain and spinal cord. It has been stated that approximately 35,000 deaths resulted in 1938 from accidental injuries involving the head and spine alone and it is reported that 112,000 cases of fracture of the skull, from which recovery is made as far as immediate effects are concerned, occur annually in the United States, but we must realize that a considerable per cent of these are left with some disability and that probably 10 per cent are totally disabled. In medical centers, in hospitals with high grade neurological services and under the supervision of skilled neurological attendance these cases are well cared for today.

It must be remembered that at the present time more than half of these cases happen on rural highways and must be treated by doctors who are in general practice. Such injured persons must not be moved long distances and it is a poor treatment to take them to the "big shots" in the larger towns and medical centers. However, we have all seen a sufficient number of such accidents and have read and studied methods which have given the big boys the most successful results that we can easily familiarize ourselves with the diagnosis and treatment in more than 90 per cent of these cases, and this treatment can be given practically any place. The treatment has been so well standardized that by far the greatest percentage can be well cared for by the doctor who sees the case at the scene of the accident.

Prior to 1920 the mortality rate for skull fractures varied from 28 to 40 per cent, even in the best equipped hospitals. In 1929, in Bellevue Hospital, New York, the mortality rate was 37.8 per cent. Temple Fay's series of 7,000 cases during the last 15 years, treated with due consideration of cerebral hydrodynamics consisting of repeated spinal puncture, dehydrating measures and restriction of fluid intake showed an average mortality of 14.5 per cent. During the last two years Fay has shown a mortality of between nine and 11 per cent.

It seems like, with the standard method of treatment which can be carried out in any village and with a careful diagnostic survey, the discrepancy between the treatment which gives a mortality of 11 per cent and that which gives a mortality of 40 per cent should be corrected.

For this reason it seems proper to again review some of the high points in the diagnosis and treatment of these very common injuries.

We know that a fracture of the skull, whether of the vault or of the base, is of little significance as compared to the injury of the brain itself. We also realize that there is probably only one urgent emergency which requires operation and that is a rupture of the middle meningeal artery. All we can accomplish in operating on a case of acute head injury is to take something out and that something is an extra or sub-dural hemorrhage, depressed bone fragments or contused and lacerated cortical or sub-cortical brain tissue.

A hemorrhage from the middle meningeal artery is an extra-dural hemorrhage and most cases put us on guard by the following diagnostic points. The patient may not have been unconscious immediately after the injury but usually is for a short period of time, then regains the conscious state and has a lucid interval and again gradually develops coma. Many descriptions have been given of the various findings or combinations of findings involving the pulse, the blood pressure, and the respiration, but the most characteristic and reliable sign of a middle meningeal hem-

*Chairman's Address, Section on General Surgery, Annual Meeting, Oklahoma State Medical Association, Oklahoma City, May, 1939.

orrhage is dilatation of the pupil upon the side of the hemorrhage. It should be remembered that bleeding from this artery may occur on the side opposite the skull injury. The coma may be slow in developing and, under such conditions, a careful neurological examination may reveal a weakness of the muscles on one side of the face, in one arm and in many cases in one leg. A constant watch should be kept on the facial muscles during emotional expression, the difference in the size of the palpebral fissures and the tendency of one upper extremity to be limp.

The treatment of a ruptured middle meningeal artery is, of course, to ligate the bleeding vessel. Someone skilled in this type of work must be called.

The clinical symptoms of head injuries change so rapidly that only the closest observation will enable us to make the diagnosis in time to be of the greatest help to the patient. Shock is present in the majority of cases and it should be emphasized that cerebral shock can be grafted on general shock. Marked restlessness, delirium, and persistent coma are signs indicating marked brain damage or increased intracranial pressure. When increased intracranial pressure comes on slowly, the pulse rate may be as low as 40 and this is a warning sign demanding relief before the medulla becomes compressed with a pulse changing to a rapid rate. The pulse and respiration should be taken at two hour intervals. Temperatures above 102 indicate compression of the medulla. The reflexes are variable. A dilated pupil on one side indicates a hemorrhage on the same side. It is to be remembered that in the brain there are three sets of circulation, the arterial, the venous and the brain and spinal fluid, and that in a head injury they all may be disturbed. Pupils which are widely dilated and do not contract are of serious import and significance. If the pupils are normal on admission and later become irregular or unequal or show variations to light, it is frequently helpful in determining the site of injury.

Without entering into a long discussion of matters that have been subject to controversy in the treatment of head injuries, the treatment which in general I have followed and the treatment which has been found successful by experts is about as follows: In the first place it certainly is not advisable to remove the patient to distant places or medical centers for care. The patient, whether unconscious or not, is as soon as possible put to bed and treated for shock. He is kept warm, a close record of his temperature, respiration and blood pressure findings is kept. No effort is made to obtain an X-ray at this time. Formerly, patients showing any degree of shock were given a slow intravenous injection of 50 cc of 50 per cent glucose. However, it has been amply demonstrated that the administration of intravenous glucose is attended with a secondary rise in pressure. It also has been shown that this secondary rise is not experienced after sucrose has been used, although, to obtain the same effect of dehydration, about twice the amount of 50 per cent sucrose must be used because sucrose has only about one-half the osmotic pressure effect of glucose. One hundred c.c. of 50 per cent sucrose may be given by vein and may be repeated as indicated, depending largely upon the variations in clinical symptoms and cerebral spinal fluid pressure as determined by manometer readings. Fifty per cent sucrose does not cause phlebitis in the injected vein and the large amounts in the circulation are apparently non-toxic. It is also a marked diuretic. Caffeine sodium benzoate is a valuable drug in the treatment of these cases and it also has value as a dehydrating agent. It may be given in 0.5 gram doses every eight hours by hypodermic. Morphine is a medullary depressant and should not be used. Cheyne Stoke's respiration frequently disappears when morphine is stopped. Cardiac stimulants should not be used. Hot colonic irrigations are many times of help in maintaining the body temperature.

Lacerations of the scalp should have a sterile dressing applied and, when the patient has recovered from the shock, the wound should be thoroughly cleaned, devitalized tissue should be removed and a careful closure made.

In compound depressed fractures where the depression is of any consequence, (as soon as the patient has recovered from the stage of shock), the depression should be elevated and a debridement done.

In regard to lumbar punctures, I know that some good men say lumbar punctures

should not be done. Equally as good men advocate their use. My practice has been to do repeated lumbar punctures as often as every six to eight hours under careful management and reduce the spinal pressure by one-half. If the pressure is elevated or if the fluid is bloody, this is a valuable procedure. The fluid intake should be limited to 1,500 c.c. a day.

The after treatment is of great importance. These cases, with even mild cerebral symptoms, should remain in bed for two weeks and those with more severe head injuries, regardless of their wishes, should be kept in bed six to eight weeks.

Subdural Haematoma

Hemorrhage beneath the dura of sufficient extent to produce symptoms is more common than it was formerly thought to be and may occur soon after the injury or many months may elapse before such a hematoma may reach a size sufficient to cause findings. Subdural hematomata are not rare but because of the gradual onset of symptoms they are not easily diagnosed. Headaches are important. A careful neurological examination should be made for the detection of any slight difference in the muscular activity on the two sides of the body and this will frequently give a clew. The vital centers are at the base of the brain and are, of course, well protected by layers of white brain substance but just the same they are subject to oedema.

The treatment of subdural hematomata is a surgical procedure by someone who is skilled and experienced in this type of work and consists of removing the clot.

In general, the treatment of head injuries is to remove by every safe means fluid from the cranial cavity and thus reduce the pressure on the vital centers. It is, of course, a matter of everyday good judgment that patients who are unconscious should have their heads lowered in order that secretions will drain through the mouth and nose instead of being aspirated into the lungs where they are likely to produce serious complications. It is also to be remembered that these patients must not be starved and that dehydration can not be continued over an indefinite period of time.

Injuries of the Spinal Cord

Every practitioner of medicine, no matter how specialized or how generalized his field, has to treat, quite frequently, fractures and injuries involving the spinal column. Injuries to the spinal cord, like brain injuries, are serious and experience has taught doctors that they should be extremely cautious regarding the care given these cases. Because of the greater concentration of nerve fibers in a small area in the spinal cord for a given amount of tissue, destructive injuries are more serious and extensive. The frontal lobe of the brain may be destroyed by a tumor and the patient continue to carry on a normal existence but if an area the size of a pea is injured in the spinal cord, at a particular level, it may result in a permanent paralysis. The loss of function of the spinal cord is probably more often the result of vessel damage due to thrombosis than due to actual laceration of nerve tissues.

When the spinal cord is exposed for the removal of a tumor, a greater degree of compression of the cord is seen than is likely to be seen following a spinal fracture but the patient who has the compression of the spinal cord due to a slowly and progressively growing tumor frequently recovers following removal of the tumor and the patient with a compression due to an injury often will not recover his function although on gross examination the spinal cord may appear to be in a better condition. The reason that has been assigned for the cause of this is that trauma occurs suddenly and the blood vessels in the spinal cord are seriously damaged, lacerated or thrombosed, whereas the vessels in the spinal cord will withstand a slowly developing pressure from a progressively growing tumor. The vertebrae may be dislocated or, what is more common, there may be a fracture-dislocation involving fractures of the body and one or both articular processes.

The extent of injury of the spinal cord depends upon two factors, the amount of displacement anteroposteriorly and laterally and the rotation of the vertebrae. The outcome of the case depends upon the amount of injury to the spinal cord, since fractures of the vertebrae will heal by bony union as well as fractures of other bones.

From the very first moment every attempt should be made to maintain immobilization of the back in order to protect the cord from damage. The patient should be placed flat on the floor or a stretcher until he can be moved to a place where more elaborate facilities are available for his care. X-rays should be made with the least possible movement of the body and careful methods of support applied in the various necessary positions, keeping in mind that it is necessary to maintain the spinal column in its normal relations.

A complete physiological severance of the spinal cord can not be determined from a complete anatomic section and unless one has inspected the cord there can not be sufficient reason for the assumption that the cord has been divided entirely and it should not be assumed that there is a contraindication to laminectomy. Both conditions are followed by a complete paralysis in the muscles supplied by nerves which originate below the level of the injury. In both conditions complete sensory loss results below the level of the injured segment and the bladder disturbance may be similar.

In complete transverse lesions there is, in most cases, first the stage of muscular flaccidity which is the period of spinal shock. The muscles are toneless and flabby. All reflexes are lost and sphincter disturbances occur. The second stage or stage of reflex activity begins with the first reflex response to an external stimulus, usually from the sole of the foot. The third stage is that of gradual failure of reflex functions. In complete lesions the posture of the lower limbs is one of flexion; in partial lesions, one of extension. In an incomplete lesion, an early Babinsky sign appears.

Of very great importance is the Queckenstedt test for intraspinal pressure. This, of course, consists of a compressing of the jugular veins and noting the prompt rise in the intraspinal fluid pressure and the prompt fall upon the release of the jugular compression which takes place in a normal individual. In other words, in a normal patient a change in the intracranial venous pressure is followed by a prompt change in intraspinal pressure. If there is an obstruction of the subarachnoid space above the level of the spinal puncture needle, compression of the jugular veins is not followed by a rise of the intraspinal fluid pressure. This is evidence of a complete subarachnoid space block. In the presence of a partial block, the fluid rises very slowly and either falls slowly or reaches a level beyond which it does not fall and which is higher than the original pressure.

X-Ray Findings

Very often the character of the dislocation or rotation of the fractured vertebrae as demonstrated upon the X-ray plates is in itself a sufficient indication for laminectomy. Symptoms of cord injury may sometimes be present in the absence of X-ray evidence of bone pathology. In such cases, one must depend entirely upon the presence or absence of block and it is justifiable to perform repeated Queckenstedt tests to follow the case.

The first demonstration of a compression of the spinal cord is the indication for a laminectomy and not alone the suspected extent of the spinal cord damage. One may, with justification, wait for several hours until the immediate effect of general shock has subsided before laminectomy is performed but this period should not be extended for the cessation of symptoms or improvement in the presence of a block. Of course, the amount of movement should be restricted. If laminectomy is to be performed on the patient, it is wise that it should be done under local block anaesthesia. Following laminectomy, spinal fixation is advisable. Splints which are properly selected should be used. An indwelling urethral catheter should be placed. If there are no signs of improvement within three months of injury to the spinal cord, the chances of complete return of function are not considered to be good. Some of these individuals are seriously disabled but should be encouraged to study and develop their minds and take up some sort of work that can be accomplished sitting down.

Common sense and good judgment,

which are acquired by observation and experience, of course, should be the guiding principles in the treatment of all head and spine injuries, the same as in any other field of medicine.

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Diphtheria Carriers*

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Diphtheria carriers all show (1) positive culture, and (2) virulence test but (3) no membrane. It is the lack of this membrane which differentiates these from the acute diphtheria. The diagnosis is made simply by the insertion of a sterile applicator into the eye, ear, nose or throat exudate. The cases included in this report are all from the general run of private practice and are listed in order of frequency found, viz.; nose, throat, ear and eye.

Nose: Ten cases had been diagnosed "sinus trouble," treated for such, only to continue their headaches. The diphtheria headache parallels the amount of discharge, while the sinusitis headache is the reverse, and reaches its worst when the sinus becomes blocked. The quantity of nasal discharge in the carrier is always much less than that of the purulent sinusitis, and in addition more flaky and scabby in texture.

The temperature ranges normal to a rise of a degree while in acute sinusitis the elevation is usually several degrees.

Even after these carriers have been suffering for months and years they show clear sinuses to transillumination and X-ray, with no drainage present in the meatii, by nasoscopic examination. Instead there is a fluffy greyish to yellowish exudate scattered along the medial surface of the three turbinates, which usually are not engorged, and occasionally the adjoining portion of the nasal septum. Again there is no membrane and the material when touched moves easily without leaving any eroded or raw surface, and on culture yields the diphtheria organism. This in four of the ten cases has given positive virulence tests upon the guinea pig, and the diphtheria organisms again isolated from these lesions. The remaining cases have been positive on smear and culture only, since financial reasons prevented the cycle completion, yet they have been relieved by the same therapy of X-ray deep irradiation, and alkaline nasal douches, as used in the virulent positive cases.

The one exception to the rule of clear sinuses in these carrier cases was in an adult female who had sustained several sinus operations bilaterally, turbinectomies, and a submucous resection elsewhere, only to continue with her nasal symptoms. Her nose showed a unilateral blockage with polyps drenched in pus, the culture of which was diphtheria positive, and relief followed X-ray therapy and nasal douching. Her previous history covered some 20 years of continual nasal complaint and headaches.

Throat: In these eight cases the epipharynx was chronically inflamed and the adenoid area usually atrophic, but rose red in color, with scabbing and flaky exudate scattered over the posterior surface. The texture of the exudate varied from a sticky gelatinous to watery, serous consistency.

In one adult throat infection diphtheria was found accompanying a peritonsillar abscess. Several authors have previously stressed the probability of death following the abscess incision being due to diphtheria toxin absorption through the incision area. This patient was given 10,000

*Chairman's Address, Section on Eye, Ear, Nose and Throat, Annual Meeting, Oklahoma State Medical Association, Oklahoma City, May, 1939.

units of diphtheria antitoxin and the abscess incised, recovery was uneventful.

In a second case the father had continual sore throat, which showed scabbing over the posterior epipharyngeal wall. His tonsils and adenoid were moderately hypertrophied, and a mild anterior and posterior cervical adenitis were present. X-ray and nasal douching gave relief for a few weeks but symptoms and positive culture reappeared, so tonsilectomy and adenoidectomy were performed to eliminate the focus, following diphtheria antitoxin administration as a precautionary measure. Recovery was uneventful.

In a third throat case a purulent maxillary sinusitis had cleared but scabbing of the epipharynx and post nasal discharge continued. The culture was positive for diphtheria, and again X-ray and douching gave negative culture, but this case has not as yet entirely stopped the post nasal discharge.

Ear: The six discharging chronic otitis media cases had positive diphtheria smears and cultures, although not any of these have had a virulence test. They came in complaining, not of diphtheria, but of the discharging ear, which had persisted for months or years following original paracentesis for an acute condition. It was observed following X-ray therapy in these cases that the smears and cultures quickly became negative for diphtheria, which probably accounted for the improvement from the X-ray, although the streptococci and staphlococci persisted in the discharge, until healing occurred.

In addition to these chronic otitis media cases there was one unusual external auditory canal and concha eczematoid lesion, where the area involved was a typical crusting eczema of the left ear only. Eczema is usually a bilateral lesion. This site gave a positive diphtheria smear and culture which promptly healed with repeated applications of tincture of merthiolate. This case was in a young mother with a nursing child, but neither she nor her child had any other clinical symptoms of diphtheria.

Eye: The first eye case* was in a nurse suffering from chronic conjunctivitis, which originally started while she was nursing in Philadelphia. The condition had persisted for a year, during which time she had consulted the specialist of that area, before she went South for the winter, where a chronic diphtheritic conjunctivitis was found, *without* any membrane being present. She, at first, gave a negative history for diphtheria exposure, but following positive smear, culture, and guinea pig virulence test, recalled she had nursed a diphtheria case shortly before her symptoms began. Antitoxin administration cleared her condition. The second eye case was in a six-week-old baby with a unilateral purulent conjunctivitis since birth which cultured positive to diphtheria, no membrane was ever present, and administration of antitoxin immediately cleared the condition.

*Diagnosed, treated, and permission for publication given by J. V. Roule, M.D., University of Georgia Eye, Ear, Nose and Throat Staff, Augusta, Ga.

Conclusions

1. There is nothing characteristic in the appearance, color or odor of the carrier discharge. Therefore the diagnosis is chiefly laboratory and requires merely the insertion of a sterile applicator to detect the organism at fault. The "mousy" odor of the acute diphtheria is never present.

2. Some authorities contend diphtheria carriers immunize themselves to their own infection by slow absorption of the toxin. In the eye cases both recovered following antitoxin administration, while a throat case developed no complications following antitoxin, and peritonsillar abscess incision, even in the presence of a positive culture.

3. Deep X-ray therapy coupled with mild alkaline nasal douches gave prompt relief in all nose cases, and these have remained culture free for one year.

4. In no instance was infection passed onto others, even where the mother (in one of the nose cases) had six children, nursed them all, while she had the same symptoms through all those years.

5. It appears that diphtheria is possessed of properties of chronicity, the same as tuberculosis and syphilis, and should be routinely searched for in eye, ear, nose and throat conditions.

6. Antiseptic medications help but little except where the infection is upon skin rather than mucous membrane.

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Some Observations on the Diagnosis and Treatment of Pneumonias During Infancy and Childhood*

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Eleven years ago I presented before this section a paper on the treatment of broncho-pneumonias during infancy and childhood in which methods to prevent anhydremia and to maintain optimum blood volume were advocated. Since that time the members of the staff of the Ponca City Hospital have more frequently used measures relating to the maintenance of normal blood chemistry in the treatment of pneumonias. Although the value of these measures has not been proved by the reduction of the mortality rate, observation tends to show that procedures designed to offset the effect of water and mineral salt loss and the low oxygen content of the blood and tissues are beneficial in carrying many pneumonia patients through a critical period. It is unfortunate that no record is kept of the total number of pneumonias in the Ponca City area, although it is estimated that 50 per cent are treated at the Ponca City Hospital. There is even a discrepancy in the records of the number of deaths from that disease. For example, the Oklahoma State Health Department in 1936 reports 21 pneumonia deaths from Ponca City, whereas records of the Ponca City Hospital alone show 26 deaths from primary and secondary pneumonias. In 1937 the State Department reports 17 pneumonia deaths and the Hospital records 23. Thus a review of the pneumonia experience in the Ponca City Hospital will not prove the value of any procedure, as far as mortality experience is concerned, but is made to show in a small way what is being done for this important medical problem.

Arbitrarily, the pneumonias from age one month to 16 years treated in the Ponca City Hospital during the years 1936-37-38 were chosen for this study. During these years there were 6,574 patients admitted, of whom 287, or 4.3 per cent, had pneumonia. A comparison made of the experience 10 years previously, 1926-27-28, shows a total of 4,523 patients, of whom 77, or 1.7 per cent, suffered with pneumonia. This may or may not indicate an increase in the total number of pneumonias in the community during recent years, though it is believed that the incidence has recently been higher and that the virulency has also increased.

As stated above, there were 287 pneumonia patients treated during the years 1936-37-38 of whom 75 died, a mortality of 26.1 per cent. Of these there were 128 pediatric pneumonias of whom 25 died, a 19.5 mortality. Of the 77 pneumonia patients treated during the years 1926-27-28, 13 died, a mortality of 16.9 per cent, and seven, or 15 per cent, of the 42 pediatric pneumonias treated during the period failed to recover. Dividing the 128 pediatric pneumonias into three age groups, the first group of one month to two years,

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inclusive, shows 60 patients with 17 deaths, a mortality of 28.3 per cent. The second group of three to five years, inclusive, has 33 patients with two deaths, a mortality of 6.06 per cent. The third group of six to 16 years, inclusive, shows 35 patients with six deaths, a mortality of 17.1 per cent. In comparison, during the years 1926-27-28, the first group shows 18 patients with four deaths, a mortality of 22.2 per cent; the second group has 15 patients with two deaths, a mortality of 13.3 per cent; and the third group shows nine patients with one death, a mortality of 11.1 per cent.

None of the 128 pediatric pneumonias were typed, and there was no indication otherwise of the bacteriology. Several of the adult group of 159 patients were typed. However, specific serum was used only a few times — not often enough to materially alter the mortality experience. It was noted that the mortality of the adult group was 31.4 per cent as compared to 19.5 per cent for the younger group. In 1926-27-28 the mortality of the adult group was 17.2 per cent as compared to 15 per cent for the pediatric group.

Clinically, all of the cases were classed in four groups: (1) lobar pneumonia, (2) broncho-pneumonia, (3) influenzal pneumonia, and (4) septicaemia. Of the first group there were 38 with six deaths; in the second group, 70 with 16 deaths; in the third group, nine with no deaths; and in the fourth group there were six with three deaths. There were five incomplete histories with no classification of any kind, and of these there were no deaths.

Further review indicated that 24 of the cases were classified as primary pneumonia with one death, and 98 were secondary, or complicating other diseases, with 21 deaths. Six were not classified, but of these there were three deaths.

Radiographs of 36 patients were taken, but of these, 11 did not show any evidence of pneumonia. However, in this group of 11, five died—one on the first day after admission, one on the second, one on the fifth, one on the sixth, and one on the eleventh day.

Of the 25 patients with positive X-ray findings, four died. This would leave 16 patients who died but did not have radiographs made.

It was also noted that of the 25 patients who died there were 15 deaths within three days after admission. This probably indicated that the disease process was highly virulent or had existed in the home before removal to the hospital long enough in advance that irreparable pathology had already developed. Often the primary disease overshadows the pneumonia itself —as indicated by five of the nine deaths in 1938 in children with violent pertussis and uncontrolled spasms of coughing which resulted in a severe anoxemia with cyanosis. White blood counts of patients who lived average 18,270 with 71.4 per cent polymorphonuclears, and the average count for those who died was 26,000 with 70.8 per cent polys. Unfortunately, the Schilling differential was not used.

In considering the treatment of this group of patients, it was noted that at least 20 did not receive any treatment or care that perhaps could not have been given in the average home. About half of the entire group were treated in a small ward which was often quite crowded; most of the others were in double rooms and a few in private rooms. Pneumonia jackets with camphorated oil chest rubs were used about three-fourths of the time. Orders to force fluids by mouth were invariably given, and depending on the age of the patient, simple foods were offered. Fifty-two patients had a varying number of hypodermic or intravenous infusions of saline, Ringer's or Hartman's solution, the latter being used over 90 per cent of the time. About half of this number had intravenous glucose infusions, and eight had one or more blood transfusions. Fifty-eight of the group had oxygen, the tent method being the usual choice. In practically all of these, the nurses' bedside notes contained comments relating to the presence of cyanosis. It was noted that only four out of the 25 deaths did not receive any oxygen. Codeine or morphine was apparently used rather infrequently in 22 patients, and a laxative or purgative was given to only 17 patients. However, enemas were given to practically all of the patients. In fact, both from the perusal of bedside notes, as well as from personal observation, especially in the more seriously ill patients, as many as four or five enemas were sometimes given in a 24-hour period. Apparently, enemas were

given for the reduction of high temperature as well as the relief of abdominal tympanites. Hydrotherapy in the form of ice caps, tepid sponges, or cold packs was used more or less on all patients. Diathermy was used occasionally in the older children. The average duration of stay in the hospital for the whole group was 9.1 days, and the average duration of fever was 4.7 days.

As stated before, this review was made to gain some impression of the methods used in the diagnosis and treatment of pneumonias in the Ponca City community. Further observations coming out of this experience, together with the findings of investigators and other clinicians might be added to this review. It will be recalled that no attempt was made to type any of the pediatric pneumonias, and the chief reason for this was undoubtedly due to the difficulty in obtaining specimens of sputum. Furthermore, investigators have shown that a majority of the pediatric pneumonias fell into the heterogenous group IV, for which there was no specific sera. Recent developments, however, which have divided this heterogenous group into 29 separate and distinct types and for which there has also been developed specific sera for each type, should cause a considerable increase in the interest toward the typing of pneumonias outside of the larger urban centers. Also in this connection more frequent use of blood cultures should be encouraged, particularly for their prognostic value. McKann reports that the majority of the pneumonias in infants and small children fall into groups XIV, V, and XIX, the frequency being in the order named. However, it is too early to know definitely if the results from use of specific sera in these types will produce satisfactory results.

In regard to the relation of lobar pneumonia, broncho-pneumonia, and septicaemia, the findings of Gaskell are most illuminating. He shows that invasion of the lungs by a pneumococcus of low virulency will cause a single small area of pneumonia to develop, while an organism of slightly higher virulency produces a larger single area involving one or more lobes as in lobar pneumonia, while an organism of still higher virulency sweeps through the whole lung or both lungs rapidly and produces a patchy pneumonia as in broncho-pneumonia, while an organism of even higher virulency produces a septicaemia.

Reports of investigators seem to agree that 96 per cent of the primary pneumonias are due to one or more types of pneumococcus; but in secondary pneumonias, that is, in those cases in which the pneumonia is secondary to a well-defined primary disease such as pertussis, measles, or influenza, or is secondary to some long illness, the bacteriologic picture is considerably changed. These secondary pneumonias usually present the picture of a patchy pneumonia, and their bacteriology is reported as being approximately 60 per cent to 70 per cent pneumococci and 30 per cent to 40 per cent streptococci, staphylococci, influenza bacilli, typhoid bacilli, and possibly other organisms. It has been said that pneumonias due to pneumococcus, streptococcus, or influenza bacillus differ characteristically in their clinical manifestations. However, no particular characteristic sign or symptom has been noted in this study.

In further consideration of the treatment of pneumonias much emphasis must still be placed on the prevention of anhydremia and the maintenance of normal blood volume and also upon the value of oxygen administration. A valuable index to the relative anhydremia in any patient may be obtained by observing the amount and color of the urine output. As previously noted, Hartman's solution was most frequently used in those patients suffering from water and mineral salt loss. This solution is rather fool-proof in that it supplies chloride as needed; also sodium is balanced by the potassium and calcium, and sodium lactate is converted slowly into sodium bicarbonate, which is retained in the tissues if needed and excreted if not. In other words, Hartman's solution quite effectively overcomes any tendency toward either acidosis or alkalosis and its use has made it possible to maintain a more normal circulation in many of these patients, thereby reducing the number of blood transfusions in recent years. However, blood transfusion still constitutes one of the most effective means of aiding in the establishment of immunity in infectious processes and is particularly advis-

able in those patients with diminished plasma protein.

Oxygen administration has become almost a necessity in the treatment of the more serious types of pneumonia. This is really one of the life-saving procedures that modern physiology has contributed to medicine. It is used to combat a condition of anoxemia or the lower oxygen content of the blood and tissues which may or may not be associated with cyanosis. The symptoms of anoxemia will at least exaggerate, and oftentimes completely overshadow, the signs and symptoms of toxemia resulting from the pneumonic infection.

These signs and symptoms are hyperpnea, shallow breathing, rapid heart, nausea and vomiting, toxic ileus, and circulatory collapse. Of course, there are many quite mild types of pneumonias that do not need oxygen administration, but if possible oxygen should be given to all pneumonia patients whose breathing shows any embarrassment. It is important to note that a dangerous anoxemia can be present without cyanosis.

No paper on the subject of pneumonia would be complete without at least a word on sulfapyradine. Already reports indicate that the results in the treatment of pneumonias with this drug compare favorably with the results obtained in diphtheria or malaria with specific sero- and chemo-therapy. McKann reports 80 children under the age of two years treated with no deaths. Evans and Gainesford report a mortality of eight per cent as compared with 27 per cent under the control series. Tehin reports a mortality of five per cent in his observations. Although this drug with its further development offers great promise for the future, its use alone will not solve the pneumonia problem. Much work, especially in the field of bacteriology, remains to be done, and, for the time being, therapeutic methods already developed will not be displaced. Keen discrimination at the bedside will ever remain the physician's greatest asset.

Bilharzia*

Report of a Case

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Urinary bilharzias is a disease of man which often invades the urinary track due to the infusion of the trematode schistosoma hematobium, which was discovered by Bilharz at Cairo in 1851. The disease occurs chiefly in Southern Mediterranean Countries. It is endemic in Egypt, Greece, Turkey and South Africa. About 30 cases have been reported in the United States. One case was reported in a boy four years old that had never been out of the middle west. It is considered impossible for the disease to be transmitted because of the absence of appropriate snails to act as intermediate hosts.

Etiology and Pathogenesis. Schistosoma are unisexual flat worms that live in the smaller branches of the portal system. The larviae cercariae mature and mate in the larger branches of the portal system and then migrate to the smaller veins of the bladder, intestines and liver, according to the species of the fluke involved. The mature male of the schistosoma hematobium is broad, flat and of a whitish color, is about 15 mm. long and has gynecopharic groove on its ventral surface for accommodation of the female. The female is slender threadlike and of a brownish color, it is about 20 mm. long. After mating has occurred they migrate to the smaller veins in the mucosa and sub-mucosa of the

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bladder, but may take up lodgings in the veins of the intestines. There the female lays a number of eggs which set up an irritation and produce the characteristic disease. The ova pass through the mucosa and are discharged through urine or feces. On reaching water the ovum hatches in a few minutes and releases a ciliated larveun. The larveun cannot infect man, but die in 24 hours unless they reach the liver of certain species of the snail called genera bullinus. Within these snails the asexual stage occurs and a sporocyst is formed which is filled with smaller bifid-tail larvae called cercariae. The cercariae, expelled by the snail through pulmonary system, are then free to make their way toward the surface of the water, and are capable of entering the human body through the skin or mucous membrane[1].

The ova is an elongated oval, about 120 to 190 micron long and 50 to 73 micron broad, yellowish in color, and slightly transparent. They possess no lid, such as characterizes the eggs of most of the trematodes, but are provided with a thorn-like spine which is placed at one end. Within is a ciliated embryo[2].

In Vesical Bilharzia, the predominating symptoms are pain in the bladder, terminal hematura, dysuria and abdominal cramps. The bladder is thickened and congested, ulcerated or papillomatous. The cystoscopic picture may be that of a chronic cystitis, but the ulcerated papillomatous is likely to suggest malignancy[3].

The treatment is intravenous administration of potassium antimony tartrate, (tartar emetic), beginning with ¾ grain and increasing to 1½ grains once a week for about 10 doses.

Case Report

Mrs. G. L. E., white, age 39, weight 94, entered Polyclinic Hospital March 1, 1939. Complaint, hematuria. Family history, essentially negative. Personal history, usual childhood diseases without any complications or sequela. Tonsillectomy several years ago. Bilateral salpingectomy and uterine fixation 15 years ago. One normal pregnancy 20 years ago.

Present illness, 1935, patient began to have a frequency, urgency, nocturia, hematuria and severe pain in hypogastric region. Was sent to the hospital for a urological workout. Both kidneys were found to be of normal size and position, with normal kidney function. Urine from both kidneys was normal, no acid fast bacilli found. Examination of gross specimen, color red, specific gravity 1.018, acid reaction, albumen 2 plus, sugar negative, acetone 1 plus, casts none, gross amount of RBC, few WBC.

Cystoscopic examination, bladder moderately contracted, capacity about 16 oz. There were multiple papillary reddened areas studded with whitish opaque nodules, around the posterior portion of trigone and along the left ureteral ridge. Some of these areas had broken down and were bleeding. They were all thoroughly electro-coagulated. A biopsy specimen was taken from one of the lesions, no evidence of malignancy was found. Hemorrhage was controlled for about two months. It was necessary to electrocoagulate the reoccuring papillomas at irregular intervals to control the excessive bleeding.

May, 1938, patient returned to hospital with severe hemorrhage of bladder, which necessitated a cystotomy to remove bladder full of blood clots. Excessive bleeding was controlled by ligation, and papillary area cauterized. Patient made an uneventful recovery and left the hospital in two weeks and continued well for about three months, at which time her usual bladder symptoms re-occurred. Frequency every hour of day and night, and passing about one to two ounces of urine at a time.

On March 2, 1939, cystoscopic examination, bladder wall very thick and contracted, with a capacity of about four ounces. The usual papillary areas were observed. Catheterized urine specimen, deep straw color, turbid appearance, acid reaction, albumen 4 plus, occult blood positive (macroscopic positive), sugar negative, acetone negative, mucus 2 plus, epithelium 4 plus, erythrocytes many, leucocytes per HPF., centrifugalized specimen too many to count, noncentrifugalized specimen many large and small clumps, bacteria 4 plus, bacilli coli predominating, ova of schistosoma hematobium.

Upon finding the ova, a diagnosis of bilharzia was made. Immediate administration of ¾ grain potassium antimony tartrate, intravenously, was begun and con-

tinued twice a week. At the end of four weeks, cystoscopic examination shows a great improvement, bladder capacity 12 ounces, with papillomatous areas disappeared, leaving a reddened area, with a few white streaks in the center. Patient is voiding seven to ten ounces of urine at a time, gets up two or three times at night, and has gained 10 pounds. However, treatment will be continued for about four or five weeks, or until cystoscopic examination reveals a negative bladder.

This patient is a native of Georgia, and lived in one of the sea port towns in Texas until 1934.

In quoting Dr. Vincent Vermooten of Johannesburg, South Africa, in a letter to the Urologists Letter Club, February, 1939:

One of the first diseases I had to learn about in South Africa was Bilharzia. It is so prevalent and so extensive in the Transvaal and in Natal, that, when a patient comes in complaining of attacks of renal colic and haematuria, one immediately suspects Bilharzia and is surprised when one finds a renal or ureteral calculus. The result is that, in bilharzial districts, p a t i e n t s with nephritis are frequently mistakenly treated with antimony injections and so too, are those with renal or vesical tumors.

The correct diagnosis by the urologist is easy, for the cystoscopic appearance is so characteristic. Patches about the size of a quarter, usually near the ureteral orifices, are seen, giving the appearance of millions of tiny crystals, lying just under the epithelium. In Egypt they are known as "sandy patches" for they glitter like the sand on the banks of the Nile. Here on the Reef they remind us of "gold dust."

If no "gold dust" is visible, one frequently sees small raised nodules, quite white in appearance, about a millimeter in diameter and raised about one millimeter above the surface of the bladder mucosa. These nodules, either singly or in groups, resemble tubercles, but have no red ring around their bases. I have seen both these lesions disappear completely after an adequate amount of antimony has been administered.

Papillomata, ulcers or other bilharzial lesions are, in my experience, never seen without one or both of the above lesions being present.

When therefore, we suspect bilharzia, we do not rely for diagnosis upon finding the ova in the urine, nor upon an eosinophilia, nor on a history of terminal haematuria. A cystoscopic examination will give us an immediate answer and it is also the only definite way of knowing when a patient is cured of the disease[4].

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The Common Skin Diseases of the Lower Extremities*

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Many of the more common skin diseases occurring on the lower extremities present rather bizarre lesions and even the most frequent eruption; those encountered routinely are often erroneously diagnosed, resulting in many instances in a misdirected treatment. A resume of these more common lesions with some of the newer methods to their successful management prompted me to discuss them.

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The etiological factors are numerous but simplified when the normal and anatomical functions of the skin are remembered. The skin's natural thickness plays an important role, as well as man's upright position, which has been responsible for some of the more common eruptions on the lower extremities as stasis, or improperly fitted pedal coverings causing many hypertrophies. The endowed individual characteristics of the skin, whether it might be an altered sensitiveness or true allergic response, accounts for a certain number of the dermatoses. Contact substances must be remembered such as shoe leather, dyes, flax linings of shoes, hose, etc. A certain number of the diseases are merely expressions on the skin of constitutional disease (syphilis, pellagra, exanthemata, and other diseases). Others are purely cutaneous in origin, the entire process being limited to the skin (scabies, impetigo, pyogenic and mycotic infections).

The inflammations and hyperemias, particularly the eczemas, contact dermatitis, and stasis dermatitis still require considerable consideration. The complicated disease picture dermatomycosis requires much knowledge to accurately differentiate it from the eczemas and dermatitis. To assume, without confirmation, that all dermatitis occurring on the feet and lower extremities is caused by the many varieties of the mycoses only leads eventually to misdirected treatment. The disease eczema, if we still consider it a disease per se, and rightly should, as encountered on the lower extremities, presents the familiar picture, whether it is pustular, erythematous, papular, vesicular, squamous or the "Eczema Rubrum." Isolated nummular plaques are too frequently treated for a mycotic infection.

The dyshidrotic eruptions simulating dermatitis-eczema processes, even psoriasis pustulosa, add to the already complicated picture, the latter being a most difficult diagnostic problem. Whether we admit dysidrosis as a disease entity, or as (1) Schuermann considers this process a syndrome of other processes and call them "Dyshidrotic Exanthems," must not be disregarded, since many persistent and recalcitrant vesicular processes will improve rapidly under dyshidrotic management. The stabilization of the sympathetic and parasympathetic nervous system with calcium therapy and high vitamin feeding, particularly the hypodermic injection of thiamin chloride in doses of 3,000 units or more daily, will often suffice to alleviate a troublesome dyshidrosis. The use of the follicular hormones, when indicated, likewise will be of value.

The invasion of the skin of the feet and lower extremities, including the appendages of the feet, by the large group of fungi is a prevalent disease. The sodden macerated interdigital lesions, the vesicobullous plantar eruptions, the associated streptococcus and staphlococcus infections, the desquamative and hyperkeratotic lesions, are familiar to those doing a specialty; yet how often do we fail because our assumption that it is mycotic rather than proven, leading us to reconsideration only to find a negative smear, culture, and dermatomycin test. The latter should not be considered diagnostic, if positive, but only an expression of sensitivity. The insistence upon routine smears can not be urged too strongly, since errors are in direct proportion to the inconsistency, or lack of preforming same, resulting in improper treatment. The steady stream of desirable patients could be rediverted to their proper professional conferees if more diligence on the part of the physicians, as a whole, was expressed by an equivalent determined attitude. The most important single prerequisite for the successful management of these various mycotic lesions is individualization. No set rule of thumb treatment is applicable to a satisfactory end result. Overtreatment is equally undesirable as the mycotic infection and, at times, even more troublesome than the original infection. Proper attention to the secondary invaders should concern us more immediately than the mycotic phase, since the latter in most instances responds to appropriate antifungicidal preparations. The approach by the intradermal desensitization, in my hands, has not proven to be the anticipated help which was hoped for after its standardization.

Contact dermatitis occurring on the lower extremities is often overlooked and treatment instituted for some other disease, more often a mycotic infection. Many of the persistent lesions on the feet and legs are due to the contacting material;

for example, leather, dyes, hose, lining of shoes, rayon, foot powders, etc. The more acute onset which is characterized by an intolerable pruritis, absence of fungi in smear, positive patch test, lack of involvement of the interdigital spaces, predilection for the great toes and dorsa of the feet instead of the little toes and plantar surfaces of the feet in dermatomycosis with extension onto the ankles, leads to an early recognition. Appropriate therapy includes the removal of the offending agent with soothing or stimulating preparations as indicated.

The pyogenic invaders, especially the staphylococcus and streptococcus, producing a dyshidrotic pyodermia, complicate the picture. Occurrence of these lesions on the sides of the toes and the plantar surfaces with deep seated pools of pus on a more or less erythematous base; developing rapidly, especially with the streptococcus and its complicating lymphangitis; often quite painful and being rather poorly limited, presents a rather unique syndrome. The inspection of the hands will materially aid in the diagnosis since a number of these cases show an associated dyshidroform eruption. Chronicity is the usual added feature; however, excellent results may be obtained by the judicious administration of staphylococcus toxoid or autogenous vaccine together with adequate local therapy.

Stasis in the lower extremities from the various pathological conditions, especially varicosities, thrombophlebitis or lymphatic obstruction, is one of the more common causes for a chronic dermatitis appearing on the legs, as well ulcers. These static conditions previously and incorrectly called "varicose dermatitis and ulcer" usually occur on the lower third. At times the ulcers appear over the internal malleolus. These ulcers with their characteristic features seldom give rise to any diagnostic problems; however, one must differentiate syphilis, erythema induratum, broken down tuberculids and cancer. The familiar solitarity, induration, indolence, arciform configuration, punched out appearance, central healing with an atrophic noncontracted scar, and peripheral hyperpigmentation is the usual appearance of the luetic ulcer.

Tuberculids are more frequently multiple, occurring on the knees and elbows usually in crops. Erythema induratum is predominantly on the posterior aspect, usually the lower portion of the leg, and begins with a bluish-red, firm nodule or plaque ultimately softening in the center to form an ulcer. Cancer, when present, is of the squamous variety. The correction of the underlying pathology in the stasis lesions by appropriate management is the most singular therapeutic requirement whether by sclerosing agents, application of fixed elastic bandages, semirigid plasters, or complete rest with elevation. The syphilitic ulcers require adequate anti-luetic therapy.

The soles are frequently the site for an early or late syphilid. The brownish-red, deep shotty, grouped papules with scant scales occurring symmetrically, should arouse one's suspicion, and adequate search should be made for confirmation of the early syndrome. The late cutaneous lesions, other than ulcers previously described, in contrast to the early lesions, are more often unilateral. The keratoderma's with the thickened plantar surface, hyperkeratotic and verruciform lesions, are distinct in their expression. The dismissal of a mal-perforans as an "infected wart," callous or soft corn, is not uncommon. The examination of the pupils when encountering these lesions frequently pays dividends, since these individuals may be unaware of their syphilitic process.

Drugs taken internally, in many instances, produce various dermatological expressions on the lower extremities. These reactions, at times, involve actual deposition of the drug in the tissue, or a toxic expression such as a toxic dyshidrotic process. Again the process may be any of the many usual combinations. Arsenic, besides the acute reactions, produces characteristic keratodermas on the soles, as well as the general cutaneous surfaces. The vegatative lesions produced by the bromides and iodides seldom give rise to any diagnostic difficulty; however, their identity should be established since appropriate treatment will depend upon their removal. Many of the newer drugs now being used are likely offenders, especially sulfanilamide, which may produce various type lesions. Confirmation of the suspected offender with prompt removal and adequate specific

therapy will result in satisfactory recovery.

Hyperhidrosis and bromidrosis are very annoying and unpleasant conditions. The excessive sweating, with the usual accompanying pungent odors, is often encountered among hyperactive individuals, or those individuals whose sympathetic nervous system responds to the slightest stimulation. The recalcitrant cases respond well to irradiation by the fractional method for immediate relief, but attention to the neurogenic element, for the final solution, is essential. Sedation, tonics, and vitamin therapy will materially aid these these individuals.

The most common hypertrophies occurring on the feet such as clavus, callosities, and verrucae, should demand a great deal more consideration by medical men. These lesions, to the average physician, seem so trivial that a casting glance is the only solace these patients receive. How often could these worthy individuals be properly directed if more consideration be given them. An orthopedic examination, for the correction or proper support, in conjunction with removal of the corns and callosities will not only materially alleviate the local process, but in addition, soothe many irritable, high strung neurotic women. The common plantar wart, verruca plantaris, whose presence demands immediate treatment to avoid additional lesions, as well, alleviation, and whose exploitation by the various individuals treating these lesions, in most instances for remunerations far in excess of the more satisfactory methods, will respond promptly to irradiation with less expense. A single treatment with unfiltered X-ray, in most instances, or an injection with a soluble (water) bismuth, as recently advocated, will produce excellent results.

Fortunately, the malignant lesions of the lower extremities are not common, but when they do occur their malignancy is of the highest order. Carcinoma or melanocarcinoma developing from a pre-existing lesion, such as moles or sarcoma, demand immediate and radical treatment. Surgery and irradiation offer the only methods to combat these highly malignant lesions and the end results, in most instances, are not any too good. Careful and adequate attention to the precancerosis of the skin is, unquestionably, the better approach.

There are, in addition to the few more common diseases mentioned, many other diseases, some of which are relatively common, and others rare. Time will not permit their discussion. The successful management of the more common lesions demand an accurate diagnosis with the institution of proper and early treatment.

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CANCER

The following is taken from a bulletin and announcement of the Division of Cancer Control, Department of Health, Commonwealth of Pennsylvania. This bulletin was edited by John J. Shaw, M.D., Secretary of Health, and issued from Harrisburg, April 26, 1939.

Cancer is now a reportable disease in Pennsylvania, but this in itself will not make possible the accumulation of sufficient data on which to base a rational program of progress in cancer control for the citizens of the state. For such a purpose it is necessary that many more facts be known and correlated.

There are many questions of immediate practical importance which can be answered if only the proper data can be collected and correlated. Such important problems as the value of preoperative and postoperative irradiation in cancer of the breast, the value of irradiation of the lymph nodes of the neck when they are not clinically the seat of metastases from cancer of the lower lip, the general distribution of cancer by age and sex, and the extreme importance of delay time, all can be solved by the accumulation of proper data.

Recognition of these facts has been given by the Medical Society of the State of Pennsylvania. In the annual report of its Cancer Commission for 1938, the general principles were laid down showing how a fact-finding program could be organized for such a program, and the provisions were ratified by the House of Delegates of the Society.

To this end, then, it is proposed to augment the simple reporting of cancer cases by collecting data for every tumor case in the State of Pennsylvania. The word tumor is here defined as any neoplastic growth, benign or malignant, to include

Hodgkin's disease, the lymphomas, leukemias, proliferative cysts (this includes retention cysts), teratomas, etc. In addition, a microscopic slide preparation from all cases in which biopsy has been performed or specimens removed, and in some a block of tissue of the cancer, are to be sent to the State Department of Health Laboratory, 34th and Locust streets, Philadelphia. Appropriate containers will be provided for the mailing of these specimens and the data.

The specimens and data will be assembled and classified in the State Department of Health for periodic review and the information derived will be distributed through the Medical Society of the State of Pennsylvania and its Cancer Commission for recommendations as to better organization and correlation of cancer treatment facilities in the State. A final check will be made with the death certificates as they are collected in the Bureau of Vital Statistics.

In all cases in which an autopsy is performed, microscopic sections of the growth and data are to be sent to the same place.

Pathologists occupy the key position in this accumulation of data because the best means of diagnosis of cancer is by pathological examination. To cover the cost of preparation of extra slides and of filling out blanks, the sum of 50 cents will be paid for each slide plus blank received.

This will not be a diagnostic service, nor will the diagnosis of individual pathologists be criticized or superseded. In cases of differences of opinion, these will be recorded on the cards in the files for final disposal on the basis of further data, or as a result of conferences. These conferences, to be attended by pathologists and others interested, will be held at stated times, tentatively set at once a year, preferably at the time of the meeting of the Pennsylvania State Medical Society.

All individual cases, rare or commonplace, remain under the jurisdiction of the physicians in attendance on the patient, and will not be used except as part of mass statistics.

Obviously, the names of patients are essential for proper disposal and classification of data. Assurance is given to all clinicians and patients that names will be held inviolate and will be used only for the necessary cataloging and by only such few persons as are necessary for this purpose, who will be honor-bound to hold inviolate the names of patients.

Such a fact-finding procedure will:

1. Make for keeping better records.
2. Answer numerous immediately important practical questions, such as radiation before and after breast cancer surgery, delay-times, surgery vx. radiation in lip cancer, etc., etc.
3. Stimulate the taking of biopsies.
4. Make for better pathological diagnoses.
5. Raise all standards of diagnoses and treatment.
6. Educate doctors and lay people.
7. Provide data to determine the part heredity plays in the incidence of cancer.

This collection of slides and data will be available to any qualified person for study and correlation, at the discretion of the Secretary of Health. We urge your wholehearted cooperation in filling out the official cards because the success of this investigation depends entirely upon complete answers to every question in the questionnaire.

The magnitude and importance of this work have resulted in the establishment, by the Secretary of Health, of a Division of Cancer Control in the Department of Health of the Commonwealth of Pennsylvania.

* * * *

It would appear from the above that the Health Department of Pennsylvania is carrying out the suggestions of their House of Delegates of their State Association and with the cooperation of the physicians of the State much will be accomplished toward cancer control.

NEW HEADQUARTERS

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Oklahoma State Medical Association, 1939-40

THE JOURNAL
OF THE
Oklahoma State Medical Association

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McAlester, Oklahoma

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McAlester, Oklahoma

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EDITORIAL

HEADQUARTERS IN OKLAHOMA CITY

It was impossible for the Executive-Secretary to abstract the minutes of the meeting which we have just concluded, in time for this issue of the Journal. The meeting was apparently a success in every way. Our Guest Speakers were well received and presented excellent material and the Scientific Sections were well attended.

The Council and House of Delegates dispensed with much important business, the most important being the change of headquarters to Oklahoma City where they will be under the direction of the Executive-Secretary. The Secretary-Treasurer-Editor was retained but is relieved of all detail work. An Editorial Board of the Journal, composed of Drs. Ned Smith, L. J. Moorman and L. S. Willour, was elected by the Council and authorized the present Editor to continue in that capacity for the present, the Journal continuing to be published in McAlester.

It is important that all Secretaries of the County Medical Societies, having business with the Association, be familiar with the fact that the headquarters are now in the Plaza Court Building, Oklahoma City, and that all correspondence be so directed.

This looks like a very happy solution of the problem and with the full-time Executive-Secretary memberships should be increased and the activities of the Association greatly widened.

Let every member give the new Executive-Secretary their fullest cooperation and make every effort to make it a banner year of the Association.

THE EDITORIAL BOARD ORGANIZES

The Editorial Board, as provided for in the recently adopted By-Laws and elected by the Council, composed of Doctors Ned Smith, Tulsa, L. J. Moorman, Oklahoma City, and L. S. Willour, McAlester, met in McAlester, May 11th, and organized, electing Dr. Willour Chairman.

The Editorial policy of the Journal was discussed and some division of the work was adopted. Mr. R. H. Graham, Executive-Secretary, was present and as provided in the By-Laws will accept all of the business management of the Journal. It was apparent from the discussion of the Board that there will be no radical changes made in the editorial policy of the Journal but the high standard of both the scientific and advertising material will be maintained and Mr. Graham said, if a decrease in the cost can be obtained with maintenance of the quality of the product, that this will be accomplished.

Bids for the publication of the Journal will be received by Mr. Graham and the Association may feel sure that he will accomplish any economy possible and still maintain the Journal's high standard.

Editorial Notes—Personal and General

DR. E. RANKIN DENNY, Tulsa, was guest of the Pittsburg County Medical Society at their meeting April 21st. His subject was "Chemotherapy in Bronchial Asthma."

DR. J. T. LONEY, Tishomingo, was re-appointed County Health Superintendent of Johnston County.

DR. L. G. LIVINGSTON, Cordell, has returned from New Orleans where he took post graduate work at Tulane University.

DR. J. F. MARTIN, Stillwater, who has been seriously ill at his home, is reported improved.

News of the County Medical Societies

DR. GEORGE H. KIMBALL made a talk at the meeting of the Tulsa County Medical Society at Tulsa on Monday, April 24, 1939. Dr. Kimball's subject was "Common Problems of Plastic Surgery" and the talk was accompanied by various interesting slides.

The Southern Oklahoma Medical Association will hold their next meeting Tuesday afternoon and evening, June 6th, at the Veterans Hospital, Sulphur, Oklahoma. One of the highlights of the program is the address by Dr. Arthur E. Hertzler, of Halstead, Kansas, on "Goitre."

RECENT DEATHS

(Insufficient Data For Obituaries)

Dr. J. H. Logan, Madill, May, 1939.

Dr. W. W. Campbell, Tulsa, April, 1939.

Dr. J. B. Carmichael, Duncan, April, 1939.

Dr. J. E. Hollingsworth, Strang, April, 1939.

Dr. E. L. Bagby, Enid, died May, 1939.

Michigan Society Acts On Medical Care Plans

The House of Delegates of the Michigan State Medical Society, at a special session held in Detroit on January 9, approved the principles of group hospitalization and group medical service and empowered the Society's Council, in cooperation with hospitals and civic groups, to proceed with the establishment of plans for the formation of non-profit organizations to provide these two types of service.

The group protection would take the form of insurance with rates and benefits fixed according to actuarial studies. Rates for the hospitalization plan would probably range, for care in a ward, from 60 cents a month for a single subscriber to $1.25 for a family. Benefits would include 21 days' hospital care for the first year.

For the suggested medical service plan, an employed subscriber would be entitled to a maximum block of units of service, with an alternative plan based on a time consideration.

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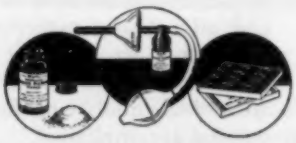

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ABSTRACTS : REVIEWS : COMMENTS *and* CORRESPONDENCE

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from
LeRoy Long Clinic
714 Medical Arts Building, Oklahoma City

"Studies on the Endometrium in Association With the Normal Menstrual Cycle, With Ovarian Dysfunctions and Cancer of the Uterus," by Wallace E. Herrell, M.D.; American Journal of Obstetrics and Gynecology; April, 1939, Vol. 37, No. 4, page 559.

This is a very practical review of the findings in the endometrium in relation to the ovarian activity and especially ovarian dysfunction. There is also included a study of 50 cases of carcinoma of the uterine fundus with the conclusion that this disease is associated with an unapposed action of estrin and, therefore, persistent proliferating type of endometrium with cystic changes.

The activity of the ovary is reflected in the activity of the endometrium. For the purposes of classification this author has divided the normal endometrial cycle into five phases, (1) the menstruating phase, (2) a phase of early proliferation (based upon the action of the follicular hormone, estrin), (3) a phase of late proliferation (based upon continued and more abundant action of estrin), (4) a phase of early differentiation (based upon early effect of the corpus luteum hormone, progestin), and (5) a phase of late differentiation (based upon continued and more abundant action of the corpus luteum hormone, progestin). These last four phases correspond roughly to the four weeks of a normal menstrual cycle in the order named. When there is an abnormal ovarian activity, there results an abnormal endometrial cycle with an arrest of the cycle in any of the phases enumerated above. He has called the phase of arrest the persistent phase and has pointed out again that the stage of arrest in the endometrial cycle depends upon the degree and the kind of ovarian dysfunction—that is, an increase or a decrease in either estrin or progestin secretion or an increase or a decrease in both. This is thus a very simple classification for correlation of the study of the endometrium with the ovarian activity in a patient.

He has likewise extended his clinical classification of ovarian dysfunction into a primary and secondary group. The primary ovarian dysfunctions lie upon the basis of failure in the ovary itself. The secondary dysfunctions are due to changes in the ovary which follow or accompany failure of the thyroid or pituitary functions. He emphasizes that the endometrium reflects only the activity of the ovary whether the ovary is primarily at fault or whether its dysfunction is due to the action of the thyroid or pituitary dysfunctions or to general metabolic disturbances.

From his studies of the endometrium he has also drawn certain conclusions as to significance of cystic changes in the endometrium. "When cystic changes are present in the proliferative phase of the cycle, the tendency is greatest toward bleeding dysfunction and to a lesser degree toward sterility. On the other hand, when cystic changes are associated with the differentiative phases, the tendency is greatest toward sterility, while the tendency toward bleeding dysfunction is almost entirely absent."

In his study of 50 patients with carcinoma of the body of the uterus the adjacent endometrium was practically always in the proliferative stage and was usually cystic. He objects to the term "hyperplastic endometrium" and feels that this endometrium is due to the unapposed action of estrin and from the absence or failure of activity of the corpus luteum. In support of the thesis that carcinoma of the endometrium is due to an unapposed action of estrin, he has the following reasons: (1) the ovaries associated with the fundal carcinoma specimens contained cystic portions lined with typical granulosa cells which he feels are probably the source of estrin in at least 90 per cent of the cases of carcinoma; (2) in the cases of carcinoma of the body of the uterus estrin was found in the urine of these patients; (3) the endometrium in patient with carcinoma of the endometrium was of a persistent, proliferative phase and was not true atrophic endometrium; (4) "Carcinoma of the body of the uterus never has been seen as far as I have been able to determine, if an individual has been previously castrated."

Comment: This is an important contribution to medical literature because it crystalizes much of the present knowledge of ovarian effect upon the endometrium into a simple clinical classification which is necessary for proper diagnosis and application of the treatment of the patient including the proper choice of ovarian hormone therapy.

Too much emphasis cannot be placed upon the fact that changes in the endometrium and, therefore, menstrual irregularities are but a direct reflection of the ovarian activity and quite frequently this ovarian dysfunction is upon the basis of other glandular or general disease. It becomes at once obvious that in treating patients with ovarian dysfunction one must use every means to disprove thyroid or pituitary dysfunction or other metabolic disturbance as the cause for ovarian dysfunction prior to the institution of ovarian hormone therapy. Naturally, if the ovarian dysfunction is secondary in type, the therapy will not be curative of the cause and will only temporarily influence the endometrial changes and probably the ovulatory activity of the ovary.

Having once determined that ovarian hormone therapy should be employed because the ovarian dysfunction is primarily in the ovary, one should use every means possible to select the proper hormone for administration. Otherwise, it will be of little effect and probably considerable harm. It is in this direction that such study of endometrial tissue, a true mirror of ovarian activity, will be of benefit preceding ovarian hormone medication.

The observations made by Dr. Herrell in relation to the etiology of carcinoma of the cervix resting at least in part upon the continued activity of estrin is an extremely important one. Though he disagrees with the term "hyperplastic endometrium," his observations are but a refinement of the feeling of Meyer, Taylor, Novak, and others who have felt that endometrial activity past the

menopause was in a degree responsible for endometrial carcinoma. Most arresting is his observation that he has not heard of a case of carcinoma of the endometrium in the uterus of a previously castrated individual.

Wendell Long.

"Acute Intestinal Invagination in the Grown-up Child, with Two Observations, in One of Which There Was a Meckel's Diverticulum (L'Invagination Intestinale Aigue de la Seconde Enfance, Deux Observations Dont Une Avec Diverticule de Maeckel)," by Charles Lefrancois, Chirurgien de l'hopital Saint-Luc, Montreal; L'Union Medicale du Canada, April, 1939, Vol. 68, No. 4, page 387.

The author makes a very interesting and instructive report about two grown-up children (seconde enfance), remarking that intestinal invagination at that age is more rare than in infants.

Intestinal invagination in the grown-up child is not usually as grave as in the case of the infant. Ordinarily, the invagination in the grown-up child is chronic or at least subacute, and the surgeon is able to spend some time in making a decision.

At the same time, there exists in the intestinal invagination of older children acute and subacute forms that may become rapidly fatal if diagnosis is delayed so that an early operation cannot be done.

In the intestinal invagination of the grown-up child, if it is acute, the beginning is sudden. Briefly, the symptoms are the classic symptoms of intestinal invagination of the younger child—that is, pain that appears in crisis of an atrocious character, separated by intervals of relief; early vomiting. Bloody stools are not as frequent as in infancy, and for that reason it is important to make a digital examination of the rectum in order to determine, if possible, if there is evidence of either a tumor or of blood. Very often there is no evidence of blood at all at the beginning of the difficulty. At the same time, there is complete obstipation.

The author directs attention to the extreme importance of a palpable tumor in the abdomen. He remarks that this abdominal tumor nearly always exists in the case of intestinal invagination in the grown-up child, and that it is one of the most important evidences of invagination at its beginning. ("Cette tumeur abdominale qui existe presque toujours est un des plus precieux symptomes pour identifier l'invagination a son debut.")

There are two case reports as follows:

(1) A boy of 10 years entered hospital 4:00 p.m. on a certain day because of violent abdominal pain. The difficulty began at 10:00 a.m. the same day. At first the pain was more violent on the right side of the abdomen. He was put to bed at once and a physician was summoned. There were periods in which he appeared to have some relief, but always the pain would reappear with equal violence. These intermittent crises continued until he was admitted to the hospital. In the meantime, there had been vomiting on two or three occasions.

The patient was a well-developed boy of 10 years. His health had always been good. He appeared to be very sick, and responded with difficulty to questions. At intervals there would be attacks of pain, at which time he would cry in a distressing manner.

The pulse was 134, temperature 97° F.

On palpation, there was extreme tenderness in the right lower abdomen, the tenderness remaining between the crises of pain. However, there was no muscular rigidity. The abdomen was slightly distended.

In palpating the abdomen, a mass about the size of an orange was felt rather deeply in the right lower abdomen near the flank. It was slightly movable, and was extremely tender.

Suspecting an intestinal invagination of an acute character, a rectal examination was made. There was no particular tenderness in connection with this examination, and there was no evidence of blood. No mass could be felt by rectum.

The blood count showed hgb. 50 per cent, R.B.C. 3,500,000, W.B.C. 19,700, polymorphonuclears 97 per cent.

Operation was done through a right pararectus incision below the umbilicus eight hours after the beginning of the attack. As soon as the peritoneum was opened the mass was found. It was very clear that there had been an ileo-colique invagination —that is, an intussusception.

It was decided to attempt a reduction of the invagination. This was carried out with considerable difficulty, the assistant exerting very light traction on the ileum, while the operator maneuvered the mass from the distal point. Fortunately, after 15 minutes the invagination was reduced. It showed that there had been an invagination of about 30 centimetres of the ileum. There was some infiltration here and there with a few ecchymotic areas, but, on the whole, the intestine was in very good condition.

The appendix was removed simply as a prophylactic measure. The terminal ileum was fixed by five or six sutures to the surrounding periteneum as a preventative measure. The abdomen was closed without drainage.

The postoperative course was excellent. The child was discharged from hospital on the ninth day after operation, his condition being good at the time.

(2) The second patient, the case of which is reported by the author, was a boy 13 years of age. While eating supper at about 7:00 p.m. December 24, 1937, there was sudden severe pain in the abdomen. The pain was so severe that the parents became alarmed at once, and took him across the street to the family physician who happened to live near them. The physician ordered him to bed, put ice on the abdomen, and told the parents he would see the child a little later. He went by to see the child at 10:00 p.m., at which time the complaints were very much more pronounced than when he had seen him at first. In fact, he was so alarmed about him that he took the child in his automobile and transported him some distance to a hospital. In the meantime, there had been extremely severe, intermittent pain, when the child would cry out, notwithstanding he had had some morphine hypodermatically. He had vomited two or three times before he reached the hospital.

In this case it was learned that the boy had had a somewhat similar, but much milder, attack — possibly several such attacks before.

At the hospital, the boy showed evidence of acute suffering. He was agitated, and cried out spasmodically.

On palpation, the abdomen was soft, and there was nothing about the right iliac area that would cause suspicion. However, near the umbilicus one could feel a mass that seemed to extend across the abdomen at that point. The tumor was movable, but manipulation caused extreme pain. Rectal examination was negative, both in connection with the presence of blood or the existence of a tumor. Pulse was 66, temperature 97.

There was a tentative diagnosis of intestinal invagination, but one considered, also, the possibility of an intestinal infarction.

Surgical operation was done seven hours after the beginning of the attack. The approach was through a low median incision. The mass was found at once. The head of it was some 10 cm. from the cecum. It was decided to try to reduce

the mass. This was carried out with extreme difficulty, and required much patience and gentle handling. Finally, after a manipulation over a period of about half an hour it was reduced. At that time it was seen that there existed in connection with it a Meckel's diverticulum which had become invaginated into the intestinal tract. The intestine was, fortunately, in very good condition. The Meckel's diverticulum was about 2½ inches long and its diameter a little greater than the intestine (ileum). At the point of insertion of the diverticulum the intestine was not narrowed, as is frequently the case. On the contrary, it was dilated which made it possible to carry out a simple resection of the diverticulum, with closure of the opening by three layers of sutures. After placing a cigarette drain, the abdomen was closed.

The postoperative course for two days was alarming. There was difficulty in connection with the lungs, it being pretty clear that there was a distinct pulmonary congestion. Fortunately, after two days there was improvement, and the patient was discharged from the hospital 15 days after admission, his condition being good at the time.

The author makes some very interesting comments in connection with the diagnosis and proper treatment of acute intestinal invagination in the grown-up child, indicating in a very clear way that an early operation is of even very much greater importance than an early operation in acute appendicitis, because after 12 or 15 hours it is quite probable that one would not be able to reduce the invagination, thus making resection necessary—an operation that carries with it a very high mortality.

Altogether, this is a very important and a very practical contribution. It is a contribution that shows us the tremendous importance of the problems in connection with the "acute abdomen." Moreover, reports like these show how futile and dangerous it is for one to play the role of an "abdominal surgeon, limited." The reports show, too, the salvation to be derived from prompt and intelligent cooperation of the attending physician and the surgeon.

LeRoy Long.

"Prothrombin Deficiency and the Effects of Vitamin K in Obstructive Jaundice and Biliary Fistula." John D. Stewart, M.D., Boston, Mass. Annals of Surgery, Vol. 109, No. 4, April, 1939, page 588.

When Dam, in 1935, showed that the lack of a fat-soluble substance which he called vitamin K in the diet of chicks led to fatal bleeding, he opened a new approach to the study of pathologic bleeding. Investigation of a hemorrhagic disease of cattle resulting from eating spoiled sweet clover had led to demonstration of low plasma prothrombin as the etiologic factor, presumably due to toxic effect on the liver. Improvements in methods of determining plasma prothrombin were followed by observation of low plasma prothrombin in animals with experimental liver poisoning and biliary obstruction, in chicks with hemorrhagic disease from vitamin K deficiency, and in patients with obstructive jaundice.

Another link in the chain was supplied by the experimental proof that fat-soluble vitamins are not absorbed from the intestine in the absence of bile salts. Practical application of these facts has led to successful treatment of prothrombin deficiency in patients with liver disease by means of extracts containing vitamin K. Considerable progress has been made in the purification of vitamin K, although a preparation suitable for parenteral use is not yet available. Much study has been given to developing better methods of assaying the vitamin K content of various animal and vegetable fats, but a method based on the protective or curative effect on chicks must still be used.

Data included in this article were obtained in the study and treatment of patients with obstructive jaundice or biliary fistula on the Surgical Services of the Massachusetts General Hospital during the past year. The author states that this is to be regarded as a preliminary report, given because his results are so striking.

He sets forth in detail the laboratory procedures carried out such as the method for determination of plasma prothrombin percentage, etc.

The average increase in plasma prothrombin under vitamin K therapy was 32.8 per cent.

The frequency with which plasma prothrombin is reduced in obstructive jaundice is striking. During the course of this study only one case was seen in which obstruction to bile flow for over a week had not been associated with plasma prothrombin levels of less than 84 per cent. In this case the author says that the patients' appetite had remained remarkably good and the biliary obstruction was not complete. In the preoperative group the response to vitamin K-cholic acid has been invariable. It seems to be true, however, that the more severe the liver damage the less marked is the prothrombin recovery. Little, if any, correlation is discernible between the degree of depression of plasma prothrombin and the plasma bilirubin level. This is not surprising since the excretory function of the liver is only one of the factors concerned in the maintenance of plasma prothrombin. Also, even when bilirubin is being excreted, bile deficient in cholic acid and hence less effective in promoting absorption of vitamin K may be formed by the damaged liver.

A drop of 20 to 40 per cent in plasma prothrombin concentration immediately after operation is to be expected, dependent perhaps on such factors as blood loss and dilution of plasma, clotting, and depression of liver function by anoxemia and anesthesia. The fall is transitory, however, if vitamin K-cholic acid feeding is resumed at once.

It is apparent that the plasma prothrombin level is quickly responsive to change in metabolic conditions, suggesting the absence of prothrombin reserves in these patients. A safe preoperative plasma prothrombin level, preferably above 75 per cent, is highly desirable. Since the prothrombin level may change quickly, the need for frequent determinations in the early postoperative course is obvious.

There were five cases of postoperative hemorrhage. Two of these created an interesting experiment by refusing to take the vitamin K-cholic acid capsules after operation on grounds that they caused epigastric distress. In both cases a steady drop in plasma prothrombin with subsequent massive hemorrhage resulted. Thereafter, the patients cooperated in taking the mixture and rapid restoration of plasma prothrombin and cessation of bleeding followed. In one patient the biliary obstruction continued only partially relieved after operation because of cholangeitis, and bleeding set in as late as the sixteenth postoperative day. The author feels that the vitamin K, taken for eight days after operation, postponed the bleeding, for, as a rule, bleeding from prothrombin-lack occurs within the first week after operation. He feels that a most interesting question, which deserves study, is the influence of infection on plasma prothrombin. There is evidence that the liver may react sensitively to extra-hepatic inflammation, for example, the rise in plasma fibrinogen occurring in the course of abscess formation and in pneumonia.

Blood transfusion appeared to be a rather inefficient method of combating the bleeding tendency due to hypoprothrombinemia, as the effect on the recipient's platma prothrombin is slight and

transitory. The author has found a measurable increase of only 6 per cent occurring in one adult patient whose plasma prothrombin level was determined before and after transfusion of 600 cc. of blood. He feels that blood transfusion is needed to replace lost blood, but vitamin K-cholic acid therapy is indicated in order to prevent further bleeding.

The conclusions drawn by Dr. Stewart are as follows:

"1. In obstructive jaundice and biliary fistula the plasma prothrombin level may be low.

"2. Following operation upon such patients, further reduction in the plasma prothrombin may occur.

"3. Dangerous bleeding may take place with plasma prothrombin concentration of less than 50 per cent normal.

"4. No correlation can be made out between plasma fibrinogen and prothrombin concentrations.

"5. Administration of a mixture of vitamin K and bile salts, through a jejunostomy if necessary, leads to a restoration of plasma prothrombin and control of the bleeding tendency.

"6. Plasma prothrombin level depends on the functional capacity of the liver as well as absorption of vitamin K from the intestine."

LeRoy D. Long

INTERNAL MEDICINE

Edited by Hugh Jeter, M.D., 1200 North Walker, Oklahoma City

A Preliminary Report of the Blood Picture in Brucellosis. Myrtle Munger, B.S., and I. Forest Huddleson, Ph.D., East Lansing, Michigan. (The Journal of Laboratory and Clinical Medicine, March, 1939, Vol. 24, No. 6.)

Herein is a preliminary report of the blood picture in Brucellosis. This report is based on the study of the blood on a number of acute undulant fever cases from which Brucella melitensis was recovered. All patients were showing symptoms of the disease at the time of examination and the blood examinations were made from two to four weeks after the onset of the disease. The authors found in this study of Brucella melitensis infected individuals that the blood picture reveals a leucopenia with a relative lymphocytosis and monocytosis. Red blood cells tend to be slightly smaller than normal. However, some patients show macrocytosis. One interesting point that has not been noted before is that many of the mature small lymphocytes are much larger than normal which is similar to the infectious mononucleosis type of lymphocyte. These have been termed "pathologic lymphocytes." "Liver damage cells" were found consistently in these patients. The "liver damage cell" of Isaacs is a cell averaging 15 x 13 microns with an oval nucleus, rather dense chromatin, foamy blue staining cytoplasm, but with absence of minute red staining granules of the monocyte and no perinuclear clear zone as in the lymphocyte. It is found in disease associated with liver pathology.

Another interesting point that is noted is a marked basophilia of the granules of the neutrophiles. The authors believe that this phenomenon may be associated with the temperature elevation that the patients experienced and believed that it is characteristic of the Brucella melitensis infection since it was not encountered in the Brucella suis and Brucella abortus infections.

Visualization of the Chambers of the Heart, the Pulmonary Circulation, and the Great Blood Vessels in Man; A Practical Method. By George P. Robb, M.D., and Israel Steinberg, M.D., New York City. (The American Journal of Roentgenology and Radium Therapy, January, 1939, Vol. 41, No. 1.)

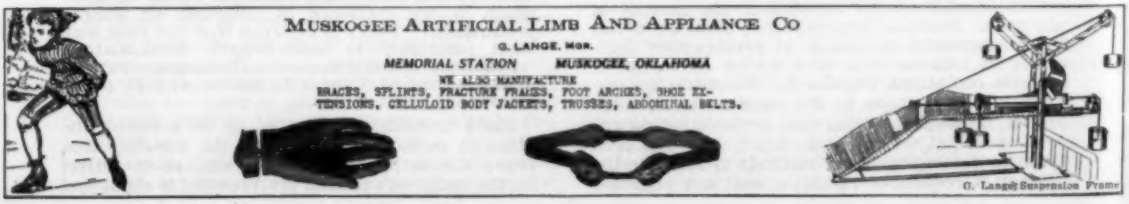
In this the authors present a method of visualizing the chambers of the heart, the pulmonary circulation and the great blood vessels.

The method consists of two essential parts: The injection of enough radiopaque substance into the blood entering the heart to make the chambers and important thoracic blood vessels opaque to the roentgen-ray during the first circulation and the making of roentgenograms of these structures at the time of opacification. A full description of the exact procedure is presented as well as pictures with descriptions of the apparatus used.

A total of 238 injections were made in 127 patients of whom 42 were normal, 47 had pulmonary disease and 38 cardiac disease. The important practical features of this method are the 70 per cent of diodrast, adequate dosage, rapid intravenous injection, accurate determination of the time for exposure and the proper position during roentgenography. The radiopaque substance, diodrast, was used because of the mildness of its pharmacological action. It is not radioactive.

The authors conclude from this work that visualization of the heart and the thoracic blood vessels is a practical procedure. The method provides information regarding the anatomy and the physiology of the normal and diseased cardiovascular system heretofore unobtainable. It is possible to determine the site of stenosis or occlusion of the superior vena cava and its tributaries and the course and extent of the collateral circulation. The vascular nature of the hilum may be demonstrated and these vessels differentiated from adjacent structures. Accurate studies of the arterial and venous patterns of the lung can be made. The internal structure of the living heart has been revealed for the first time and abnormalities due to disease have been observed.

Comment: One of the authors (Dr. Robb) read a paper before the American College of Physicians in New Orleans this month reviewing material of this article with some added cases. The procedure has its limitations because in only selected cases may it be expected to prove of value. The author emphasizes the fact that it is not a procedure intended for use in the routine examination of heart cases or cardiovascular disturbances, but is one which should be used as an aid in selected cases, especially those in which there is expected to be a thoracic obstruction of the venous system. More experience with a greater variety of cases may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prove of value in the diagnostic study of various types of cases in which there is a necessity for tests of precision in connection with the cardiovascular system. This paper was received very favorably at the meeting in New Orleans.

PLASTIC SURGERY

Edited by
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"The Management of Arteriovenous Aneurysms in the Extremities." Louis G. Herrmann, M.D. and Mont R. Reid, M.D., Cincinnati, Ohio. From American Journal of Surgery, April, 1939.

The authors have outlined a practical means of dealing with this condition. They have so written the technique relating to the problem that the average practicing surgeon can follow the details. The discussion deals especially with those cases having a single communication between artery and vein. Such abnormal vascular communications are usually the result of penetrating wounds, such as gunshot or stab wounds, although occasionally a single arteriovenous communication of this type is either spontaneous or congenital in origin.

Diagnosis is often difficult in the presence of a large hematoma, especially the first few days after injury. After several days a thrill and bruit may appear. Auscultation elicits a to and fro murmur over the fistula if it is unimpeded. Palpation elicits a thrill. Superficial veins usually enlarge about the site of the communication. Cardiac embarrassment may become so severe that early operation is precipitated. This embarrassment is accompanied by rapid pulse, shortness of breath, peripheral swelling, and enlargement of the heart. Hematoma about the site of the injury may be so severe as to result in gangrene. Infection within the hematoma is a serious complication.

Surgical Treatment: During the evolution of an arteriovenous aneyrysm from the time of the original traumatization of an artery and a vein in an extremity to the late stages associated with serious cardiac damage, there may be many different indications for surgical intervention either as emergency or lifesaving procedures or as elective and curative surgical operations. Massive hemorrhages into tissue of an extremity or the formation of a large hematoma may occur as an early complication of such vascular injuries. The compression of collateral arterial pathways in such an extremity may be so complete that the nutrition of the tissues distal to the injured vessels is seriously impaired. Early surgical operations with the evacuation of all clots of blood should be carried out to relieve as much tension as possible on the vital structures of that extremity. The use of a tourniquet on the proximal side of the injury to the great vessels is usually necessary and a large incision in the skin and superficial tissues is recommended to provide an adequate exposure of the injured vessels. After all clots of blood have been washed out of the wound by careful irrigation with warm saline solution, the glistening intima of the injured artery is usually detected without difficulty. After all the bleeding has been controlled, the skin and superficial tissues external to the fascia should be brought together loosely by widely spaced interrupted sutures. A sterile gauze sponge moistened with warm saline solution should be placed directly on the sutured wound and the entire area then covered with some waterproof material to retard the dessication of the wound and the dressing. The capillary action of the saline solution within the meshes of the gauze sponge helps to draw the old blood and serum out of the wound through the space between the sutures.

In those cases in which the artery has been completely severed it is usually unwise to attempt to restore its continuity by suturing together the injured ends of the vessel. When the injury to the artery is so extensive we believe that the proximal and distal ends should be isolated carefully and then ligated with heavy braided silk or narrow cotton tape. The choice of the suture material and its size should be governed by the caliber and activity of the artery which is to be ligated. If the surgeon is skilled in the use of the Tuffier tubes it may be possible to restore the blood-carrying function of an injured artery for a sufficient length of time to permit the spontaneous development of an adequate collateral arterial circulation in the affected extremity. After an artery has been repaired by sutures or after the continuity of the injured artery has been restored by the insertion of a Tuffier tube, it may be wise to prevent further intravascular clotting of the blood from taking place by the administration of purified heparin according to the method suggested by Murray, Best and their associates in Toronto.

Since we also have available an active means of stimulating the flow of blood through existing collateral arterial pathways by the rhythmic alternation of the environment pressure about the extremity in the form of passive vascular exercises, we have ceased to worry about severe degrees of ischemia which occasionally make their appearance after these extensive surgical operations upon the vascular system. If the need arises we can usually restore the arterial circulation to an adequate level by this physical means and thus prevent the occurrence of degenerative changes in the distal part of the affected extremity. When the small arterial and arteriolar network is structurally normal only a few days of intensive passive vascular exercise treatment are necessary to get the flow of blood started through the existing collateral arterial pathways. This method of overcoming acute ischemia of the tissues distal to the injured vessels of an extremity must be considered as a valuable adjuvant and should be kept ready for immediate use during the active phase of surgical treatment. It has given us the added courage necessary to perform very radical surgical procedures upon the peripheral vascular system when such operations are absolutely necessary for the cure of the arteriovenous aneurysms. In those acute cases where a tourniquet cannot be applied proximally to the injury of the vessels it is essential that some form of temporary occlusion of

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the major artery proximal to the aneurysm be performed before any attempt is made to cut into the aneurysm. Severe hemorrhage may result even when the incoming artery is temporarily occluded but the bleeding can usually be controlled by digital pressure after the clots of blood are rapidly removed from the wound. The ligation of the incoming artery should never be employed as a means of giving permanent relief. This proximal occlusion of the artery interferes greatly with the collateral arterial circulation and it is almost certain to lead to gangrene of some distal part of the extremity. The injured artery should be ligated immediately above and below the injured area in order to preserve as many of the collateral as possible.

The authors continue in detail about the emergency operation indicated if signs of infection make their appearance in the hematoma about the injured vessels. They give a comprehensive detailed report of the recommendations in such indications.

Remarks by authors:

The most essential fact concerning the elective operations for arteriovenous aneurysm is the absolute necessity of doing some surgical procedure which will completely prevent blood from passing through the fistula from the artery into the vein. In general, any operation which does not accomplish the occlusion of the abnormal communication will certainly not be a permanent cure of the aneurysm. We cannot condemn too strongly the procedure of simple ligation of the involved artery at any point proximal to the fistula. This operation is still commonly used in spite of the fact that it carries with it a high incidence of gangrene of the affected extremity. The procedure simply cuts off the main force of the arterial stream so that the small amount of arterial blood which finds its way around the collateral arterial pathways into the distal portion of the major artery immediately takes the path of least resistance by passing through the fistula and back to the heart, this depriving the rest of the extremity of its proper nourishment.

We prefer to allow a period of from four to six months to elapse before performing any elective operations for the cure of arteriovenous aneurysms in the extremities since experience has shown that the collateral arterial circulation which develops spontaneously will greatly reduce the risks of complication resulting from serious arterial insufficiency in the distal parts of the affected extremity. This delay also permits the extravasated blood to become completely absorbed and the tissues to return to more or less healthy condition and appearance thereby greatly reducing the probability of stirring up any old infection in the wound. When all of these dangers are removed the surgeon can freely choose from the numerous curative surgical operations that one which is best suited to his particular case and carry out the procedure without any fear that some serious complication will eradicate all his hopes for success. It is well to remember, however, that the surgical operations upon arteriovenous aneurysms are frequently very difficult and usually demand the greatest surgical skill, linked with sound surgical judgment. The execution of such operative procedures should not be attempted by any surgeon who has not had considerable experience with the suturing and ligation of large blood vessels.

Comment: For a great many years I have regarded Dr. Reid especially as a reliable authority on the subject of management of arteriovenous aneurysms. It has been my privilege to hear Dr. Reid discuss this subject and I have always learned considerable about the conditions from him. It must be remembered that this type of surgery involves several dangers: viz, loss of part by gangrene, infection and secondary hemorrhage. Anyone undertaking such an operation should be thoroughly acquainted with the facts of the situation together with having proper instruments at hand to deal with the problem competently.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D., F.A.C.S.
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"Recurrent Anterior Dislocation of the Shoulder," Burgh S. Burnet, Hot Springs National Park, Ark. Jr. Bone & Joint Surg., Vol. XX, No. 4, October, 1938.

The author describes 11 cases treated by the method of Roberts, of traumatic recurrent dislocation of the shoulder. He describes a number of techniques for correction of habitual dislocating shoulder; among them that of Thomas' operation of plication of the capsule; the tenosuspension method of Henderson; the biceps-tendon fixation operation of Nicola; and the deltoid-sling operation of Clairmond and Ehrlich. Roberts' technique is almost identical with that of Nicola's method with certain exceptions which to the author makes the procedure much more simple. The usual anterior approach to the shoulder is made with an incision beginning just below the anterior tip of the acromion and continuing down in the direction of the antecubital fossa for about four inches. By blunt dissection the anterior fibers of the deltoid are obtained and retracted laterally. The long tendon of the biceps is identified and removed from its groove. With a gouge, the bicipital groove is deepened, all cartilage removed, and the groove then extended upward into the humeral head for about three-fourths of an inch.

After roughening the long tendon of the biceps it is replaced into the groove. Two or three chromic catgut sutures are taken through the transverse humeral ligament, anchoring the long tendon of the biceps in place. Closure is in the usual manner. The arm is held in a triangular sling tied tight enough to support the elbow, over which a muslin bandage is applied to hold the arm and body. The sling and body bandage are discarded after the twenty-first day, and active exercise, baking, and massage are commenced.

With this technique the author has not had a recurrence in the 11 cases.

Comment by abstractor: It is to be noted that this procedure is almost identical with the Nicola procedure, with the exception that instead of drilling a hole through the upper end of the humerus in the line of the bicipital groove, that the groove is deepened and the tendon is laid in this instead of having to be divided as in the Nicola operation, and pulled through the hole that has been created. In the Nicola operation the tendon is then resutured. The abstractor has had no personal experience with Roberts' technique, but it seems to him that the only criticism to offer would be the same as has happened in certain cases of the Nicola operation; i.e. failure of the tendon to unite solidly to the bone so that recurrence is possible by the tendon of the biceps sliding through the groove or tunnel as it may be. We feel this procedure is much simpler than that of Nicola and is worthy of trial.